CHAPTER 6

TREASURY INFORMATION SYSTEMS

Objectives

After reading this chapter, you will be able to:

- Understand how treasury information systems are used to expedite the communication between the bank and the company.
- Review features, benefits and disadvantages of treasury workstations and Internet-based systems.
- Develop a coherent strategy for the selection of a treasury information system.

Introduction

Treasurer Bill Fold and Cash Manager Ann I. Shade were informed by their bankers that the collection, concentration and disbursement systems they selected require access through a treasury information system. Ann was familiar with electronic banking platforms and had used them at her previous company. Until now, GETDOE had assumed that the cost of these systems could not be justified. However, the move to a centralized treasury and the security concerns expressed by the external auditors meant that Ann must reassess treasury workstation alternatives. Bill and Ann have a number of options to consider.

The old economy of industrial production, materials and labor has transitioned in the past decade to a new economy of information and finance. As recently as 1980, the cash manager could obtain only limited daily balance and transaction data from banks. Originally the information was transmitted through a “dumb terminal” dial-up to bank computer systems or by telephone. Once data was polled and printed, the cash manager entered the numbers onto a worksheet to calculate the next day’s estimated cash position. The new economy treasurer has access to various financial delivery systems, including a full range of current-day bank information.

In considering opportunities to improve the efficiency of treasury information management, it is important to remember that each company has differing information requirements. Some treasurers require only the basic data – how much was deposited, what checks cleared, and what are the current ledger and available balances. Small and medium-sized companies can obtain these data by accessing recorded telephone menus and hand recording each day’s results. Large, decentralized companies may need highly sophisticated information

systems, with numerous modules and services. The various options are reviewed in the next section.

Treasury Information Modules

A treasury information system allows a company to electronically access its bank accounts and transaction activity. The two prevalent system configurations involve PC-based systems, often referred to as a treasury workstation, and Internet-based systems, accessed through a Web browser. The largest companies often choose to establish mainframe-to-mainframe computer interfaces.

The Basic Modules

The following modules provide the basic reporting required by many companies. The technology for these systems is available from most banks, many of which have a long history of product development and delivery.

- Previous-day and same-day reporting. Yesterday's and today's ledger and available balances are listed, including details of debits and credits, float by day (0, 1 and 2 day), and other transactions. There is usually a premium charge for same-day reporting. Since banks run their DDA systems (from which much of this information is derived) overnight same-day reporting requires feeds from separate reporting systems and is, therefore, more costly to develop.

- Polling and parsing. Account data can be retrieved by *polling* banks electronically and then downloading or *parsing* information into reports based on a script developed at the time of installation. Important features include the following:

    - Automatic dialing of banks
    - Electronic responses through scripts
    - Selection of appropriate data
    - Formatting into reports
    - Exception reports of banks for whom information was unavailable

- Domestic wire transfer. As discussed in Chapter 2, wire transfers are same-day, final transfers primarily used for large dollar transactions. Current practice for control and security strongly encourages these transactions be initiated through a bank's proprietary software (rather than by telephone or fax), using keys and passwords unique to the sender and receiver.

- ACH. Many banks now offer terminal-based ACH, allowing debit and credit transfers to be initiated by treasury rather than through the mainframe computer system.

- Controlled disbursement. Information modules offer various electronic reporting options, including stop payments, the transmission of checks issued files (for positive pay review and monthly reconciliation), the review of positive pay mismatches, and the initiation of funding wires, book transfers or ACHs to cover the daily cleared amount. See Chapter 4 for additional explanation.

- Multibank reporting. Several treasury information systems can consolidate basic balance and transaction activity from a company's banking network, simplifying the task and reducing the cost of retrieving these data each day from each bank.

- Bank relationship management. A useful module is information on each bank relationship and contact, including:

    - Name, address, telephone and fax numbers
    - Names of senior managers, calling officers and customer service staff
    - History of the relationship and calling efforts
    - Listing of services used, persistent problems and unique characteristics
    - Credit facilities available and used, as well as fees, restrictions and other covenants

Other Modules

The largest dozen or so banks offer additional modules, designed to meet the needs of global corporations.

- Foreign exchange (FX). Banks offer modules to expedite the process of purchasing or selling foreign currency, primarily in the major currencies used in international transactions: the euro, the Japanese yen, and the British pound, as well as the currencies of the other NAFTA countries, the Mexican peso and the Canadian dollar. Other currencies may be available based on the market presence of each bank and the requirements of its corporate customers. In addition to automating FX transactions, these modules usually offer lower transaction charges and better rates than polling financial institutions by telephone.

- Letters of credit. Export and import financing usually requires bank letters of credit to assure payment once all documentation and other

requirements have been completed. Letters of credit (LC) modules enable automated processing of the LC and supporting documentation.

- International money transfer. The movement of funds between banks in different countries involves linking various different international money transfer systems, usually using SWIFT formats (see Chapter 2).

- Investment management. The management of portfolios of investments can be simplified by tracking short- and long-term holdings, including trades, mark-to-market pricing, and the tracking of dividends, interest and option income.

- Debt management. Debt modules typically report commercial paper activity, fixed and floating rate instruments, credit line activity, and intercompany loans.

- Pooling and netting. *Pooling* is a technique used by in-house banks (often domiciled in treasury centers) to offset the deficits in the accounts of certain subsidiaries with excess cash in the accounts of other subsidiaries. In addition to the daily aggregation of account balances, interest debits and credits are calculated and periodically paid based on parameters established by the company. *Netting* involves the reduction in the number of intracompany payments through the consolidation and aggregation of individual transactions. See Chapter 7 for further explanation.

Treasury Workstations

The phrase “treasury workstation” generally refers to a self-contained bank- or vendor-supported treasury information system. The software that supports the system resides on a standalone PC or on a network-based computer system, and is comprised of modules that provide some or all of the functionalities described in the previous section. In addition, the software package requires telephone modem access for automated dial-up and access to bank databases containing transactional activity, and sequencing for specific functions.

The early treasury workstation products provided important features not previously available from dumb terminals. However, there were several deficiencies that affected the efficiency of treasury staff:

- Repetitive keying was required to move between modules and other systems

- Company-specific spreadsheets had to be created

- Few analytical tools were provided within the bank systems

Advanced Functionality

Banks and vendors wishing to remain competitive in this market have developed various advanced functions:

- Interfacing to various databases
    - External financial data (such as Bloomberg, Telerate, Reuters and EDGAR)
    - Internal accounting data, including the general ledger and budget reports
    - Internal financial data, including cash schedules and forecasts
    - Other internal systems linkages, including receivables, payables and enterprise resource planning (ERP) configurations
- Mapping of repetitive transactions to automate journal entries
- Reconciling bank and book balances
- Testing the impact of "what if" scenarios on the cash position
- Customized report writing to present data that has been assembled and analyzed
- Converting raw data files to spreadsheet files or other formats

These elements are shown in Exhibit 6.1, a schematic of an integrated treasury management system. The circles represent the interconnected nature of the various modules, with management reporting derived as a function of the collective informational content of the inputs.

[Insert Exhibit 6.1 here]

The central cash management system is supported by live data from sales (for receivables) and purchases (for payables), with feeds to accounting for recurring cash-related transactions whenever and wherever they occur and occasional treasury "deals". Exhibit 6.2 provides the company and product names of leading treasury workstations.

In addition to the companies listed above, there are several other vendors of treasury workstations.

EXHIBIT 6.2
Products of Leading Treasury Workstation Vendors

Company and Location	Products
Gateway Systems, Barrington IL	Xpress Treasury Management System Global Treasury Management System
Integrity Treasury Solutions, Chicago IL	Integra-T
Peoplesoft, Pleasanton CA	ERP modules
SAP, Palo Alto CA	Corporate Finance Management (ERP module)
Selkirk Financial, Vancouver BC	Treasury Manager
Sungard, Calabasas CA	Advanced Portfolio Systems, ETreasury GTM ICMS ResourceQ2 Quantum
Trema Group, Boston MA	Finance KIT
XRT, King of Prussia PA	Treasury Workstation

Source: Richard Gamble, "Making the Connection," Treasury and Risk Management, June 2001, pages 31-40.

Internet Banking

The widespread use of the Internet has encouraged banks to begin to migrate from their treasury workstation products toward Web-based browser technology. This evolution comes at the point in the lifecycle of the treasury information system when banks have begun to generally back away from full product support of sophisticated technology. This development is due both to the cost of the expertise and equipment, and to the difficulty of keeping products current with the rapidly evolving customer demands.

Bank Internet-based systems are accessed through a standard Web browser, allowing the full range of treasury services available at any time and in all locations. The user is no longer tied to a specific PC loaded with the bank's proprietary software. This allows treasury managers who are away from their offices to access their bank position and execute transactions from any computer. Another advantage is that users throughout a large company can access specific modules and make financial decisions.

In the Real World

As one example, accounts payable staff can review positive pay files directly to determine if check mismatches should be honored or rejected. In the workstation situation this process was handled by treasury staff, which was often uninformed as to the purpose or validity of a particular disbursement. The result was a series of telephone calls, e-mails or faxes, and any delay meant that the period for review (usually only about four hours) had passed. In that situation, the bank decision reverts to the pre-set accept or reject blanket rule made by the company at the time the account was established, and that default is almost always "accept".

The market penetration of the product has been impressive, with more than one-fourth of all corporate customers receiving treasury information services through an Internet banking product by early in 2001 (as reported in the Ernst & Young Cash Management Survey). Some 85% of financial institutions providing such services are now offering Internet delivery, and nearly all banks will be offering Internet delivery exclusively or together with a workstation (at least in the short-run). See Exhibit 6.3 for a representative listing of Internet-based systems offered by U.S. banks. The Tower Group estimates that over half of all corporate users will be accessing Web-based services by 2005.

EXHIBIT 6.3
Internet-based Treasury Information Systems from U.S. Banks

Bank	Development Stage
ABN-AMRO LaSalle Bank	Full
Allfirst Bank	Partial
AmSouth	Full
Bank of America	Full
Bank One	Partial
Bank of New York	Full
Citibank	In development
First Union	Partial
Fleet Boston	Partial
Harris Bank/Bank of Montreal	Partial
J.P. Morgan Chase	Full
Huntington Bank	Partial
KeyBank	Partial
Mellon Bank	In development
National City Bank	In development
Northern Trust	Full
PNC Bank	Partial
SunTrust Bank	Full
Wachovia Bank	Full
Wells Fargo	Full

FULL: the offering of a full range of information services
PARTIAL: certain basic services are available, with others under development

Note: Many of these banks are using the technology offered by third-party providers, such as Politizer and HANEY, and Magnet.

Source: Richard Gamble, "Do Banks Really Want Your Business?" *Treasury and Risk Management*, March 2001, pages 36-44; updated in “Corporate Strings Attached”, April 2002, page 34.

Benefits

There are various advantages to the use of Internet-based services:

- Cost. A full range of modules is available to users at nominal cost. Automating bank transactions greatly reduces bank costs for personnel, technology and customer service, and brings a suite of treasury services previously unavailable to many medium-sized and smaller corporations.

- Single platform access. Access through a single platform allows the corporate user to move easily from one product to another. While some

treasury workstation products are similarly organized, others have separate dial-ups, log-ons, security procedures and screen designs for various cash management modules.

- Easy implementation. New modules can be added with minimal set-up and delivery effort and cost. User-friendly menus enable users to quickly learn and adopt new technology.

- Ease of upgrading software. In a treasury workstation environment, software must be physically installed on each PC, resulting in multiple installations each time software is upgraded. On the Web this is accomplished easily with updates being loaded onto a single server.

- Straight-through processing. Vendors can begin to focus efforts on straight-through or full cycle processing, involving entire sections of the cash flow timeline. For example, e-commerce purchasing, accounts payable and disbursement services are becoming available as banks look to expand their product offerings and as companies outsource functions not considered as core competencies.

- Pricing. Fees for Internet-based products are lower than bank workstations and significantly less than for vendor-supported treasury workstations. Depending on the configuration, bank workstations typically cost in the low 5 figures, often in the $25,000 range. Vendor workstations can cost $50,000 for the minimal configuration, and as much as $500,000 for full functionality. Internet-based treasury information services may cost a few thousand dollars per module.

Disadvantages

Disadvantages include the following:

- Non-core competency. Many banks would prefer not to allocate the required capital or expertise to the design and maintenance of an Internet-based product. The delivery system is significantly more complex than merely loading software onto a disk and having the corporate customer dial into the bank's computer. For example, banks have been forced to hire network engineers to create and support the required telecommunications infrastructure.

- Technology issues. The receipt of bank information is typically slower by Internet than through treasury workstations. This is often due to the use of low speed data connections and the limitations of common carrier bandwidth; inadequate PC systems; and corporate firewalls established to deter hackers and viruses.

- Computer systems, telecommunications, and software may need to be upgraded to optimize information exchange.

- Companies will have to work with IT and security staffs to overcome firewall problems while preserving a reasonable level of internal security. Controls will be required on users not previously allowed access to treasury information to prevent unauthorized actions. These new users include personnel from outside of treasury, and treasury users attempting remote access by laptop or home PCs.

- Security. Concern for security has been an ongoing issue with all Internet users due to the potential for hacking and for virus infections.

  - Hackers are intrusions involving illegal listening on data transmissions, and may result in the theft or fraudulent use of proprietary company information.

  - Viruses involve lines of code inserted into computer programs to modify and possibly destroy data and software. The virus often replicates itself to spread through an entire computer network.

  Current versions of Internet-based treasury information services operate in secure environments with minimal risk of the loss or destruction of data.

  - Secure private networks operate between the provider and the bank.

  - Protected 128-bit encrypted Web channels operate between the bank and the corporate customer. These communication networks utilize digital certificates, password protection, and challenge responses to identify and admit the user.

  However, the prevailing attitude among auditors and information technology staff remains sufficiently negative that security problems continue to be an obstacle when considering Internet-based systems.

Internet-Banking and the Service Providers

Banks and their corporate customers have learned some expensive lessons in attempting to support their treasury information system products while providing the enhancements demanded by corporate users.

- Technical support. Traditional treasury workstation software resides on the client server, and is managed from that site. Any time the system crashes, or whenever there is a technology problem or an upgrade

needing to be installed, the banks are expected to provide the necessary service at low or no charge. Contemporary practice is for so-called "thin client" architecture, with applications managed at the provider's site. This approach greatly simplifies the effort required for technical support.

- Pricing. System design and support involves significant development and maintenance costs, which goes far beyond the usual treasury management fee of a few cents (i.e., the check clearing charge) to a few dollars (i.e., the Fedwire charge) per transaction. The current trend is to use private-branded treasury systems supported by independent software developers.

Non-bank vendors have entered the market with sophisticated, multi-functional products, including treasury modules as integral components of ERP (enterprise resource planning) systems (see Chapter 10). In partnership with the large accounting and consulting firms, these vendors provide assistance in the determination of requirements, integration with legacy systems, interface with the general ledger, user training, and implementation. Comprehensive services are provided that banks cannot support.

Many banks have decided to focus on their core businesses of lending and cash management, and rejected the vendor/ERP/consulting partnership model. Instead, they have chosen to deliver Internet-based treasury information services created and maintained by specialized vendors but under their own logo and private label. The largest of these vendors are Politzer and HANEY, and Magnet.

- Politizer and HANEY (Newtown MA) offers its products through Allfirst Bank, AmSouth, Bank One, Citibank, J.P. Morgan Chase, Merrill Lynch, Wells Fargo and various regional and smaller institutions.

- Magnet (Atlanta GA) cites various banks, including ABN-AMRO LaSalle Bank, Bank of America, Harris Bank/Bank of Montreal, National City, SunTrust and several regional and smaller institutions.

Choosing a Treasury Information System

The implementation of a treasury information system should be constructed as a multi-phase inquiry, with each step logically following from the conclusions reached in the previous investigatory step.

Step 1: Determine Information Requirements

The decision on a treasury information system should begin with the determination of the company's requirements, particularly in the context of the current use of data and any perceived deficiencies. How is treasury data

currently being developed? Are there problems with the timing, quality or information content of the results? Some useful questions to consider include the following:

- What time of day does the company typically know/need to know its cash position?
- How many telephone calls or other bank contacts are required to develop these data?
- Are the system and connections to accounting and financial interfaces primarily manual, involving internal company communications and the re-keying of data?
- Have several significant mistakes or missed borrowing/investing opportunities occurred in the past year?
- Is the company employing more treasury staff than peer group companies?
- Have banks and/or accountants repeatedly been suggesting increasing the automation of the treasury information system?

Many companies find that an *ad hoc* project team is useful in developing answers to these questions. The team should represent functions likely to be affected by any decision on a new system, including treasury, finance, accounting, and information technology. The answers to these questions should drive the decision on whether to proceed to step two.

Step 2: Conduct Vendor Search

There are several venues that provide competitive information on bank and vendor products. These include the following:

- Treasury conferences.
    - AFP. The most important exhibition for banks and vendors is the Association of Financial Professionals (AFP) Annual Conference, which meets every autumn in a major U.S. city. In 2002 the meeting will be in New Orleans, November 3-6; in 2003 it will be held in Orlando, November 9-12; Boston, October 24-27, 2004; and in San Antonio, October 9-12, 2005.

    - The number of exhibitors at this event is about 250, perhaps one-third of which offer some form of treasury information system product.

Tips and Techniques

Although the cost of attendance can be $2,000 or more including registration fees, hotel and transportation, the opportunity to see and compare systems in one central venue is likely to be more cost-effective than separate visits to or by

competing vendors. In addition, there are over 100 sessions offered on various aspects of treasury and financial management, keynote speakers and other educational activities.

- Others. Regional cash management associations offer some exhibitor space. The largest of these regional meetings include:
    - The New York Cash Exchange, held in early September
    - The Windy City (Chicago), held in late May
    - Expo LA (Southern California), held in late April or May
- Print and Internet media. The various print media offer both advertising for systems and periodic directory listings; names and Web site addresses are listed below.
    - AFP publications, including *AFP Exchange*, *AFP Pulse*, and numerous others; see www.afponline.org.
    - *Treasury and Risk Management* (www.treasuryandrisk.com)
    - *Business Finance* (www.businessfinance.com)
    - *The Treasurer* (U.K.) (www.treasurers.org)
    - *Global Treasury News (*www.gtnews.com) (U.K.)

Banks and vendors should be contacted for detailed information on treasury information system offerings, including modules, hardware requirements, implementation support, and typical pricing. The responses should be reviewed for compatibility with your requirements, and a ranking should be developed to focus on no more than three or four candidate systems.

Step 3: Review Vendor Offerings

The company's requirements should be matched against the system specifications provided by the selected banks and vendors. Consideration should be given to such issues as customer service, hardware requirements, implementation time and support, reputation and financial strength, commitment to the business, comments by references, and pricing. Pricing includes various vendor and internal components, and these should be carefully estimated to determine the fully loaded cost of the new system.

Costs:

- Initial fees including start-up costs and site preparation
- Training
- Implementation fees
- Maintenance fees
- Technology upgrades including hardware and telecommunications
- Ongoing internal support

A scoring matrix can be developed to assist in evaluating proposals received in response to your request-for-proposal (RFP). (The AFP offers a treasury workstation RFP in its publication *Standardized RFPs*). Finalists should be visited to meet the team assigned to support your company and to ask questions regarding future vendor strategies. Site visits to current users are often helpful, particularly to discuss operating issues, problems, and bank or vendor support with the staff actually using the workstation.

Step 4: Provide Economic Justification

Traditional economic analysis is not likely to be of much assistance in making the decision on a treasury information system. There are three important benefits from a workstation or Internet system that are difficult to subject to a capital budgeting analysis:

1. The *quality* of the information available to the treasury manager. Rather than receiving raw data, treasury has the opportunity to view a variety of data feeds organized in a logical report presentation.

2. The opportunity for *rationalization* of bank account structures and treasury files, documents and processes. As the result of better bank account information, management can eliminate idle or redundant accounts, determine if adequate controls are in place to safeguard cash and other financial assets, and compare banking costs across all financial institutions.

3. The general business process *efficiencies* gained through the improvement of existing practices. The installation of the new treasury information system encourages an examination of the cash flow timeline, and the reengineering or outsourcing of selected activities.

The quantifiable savings are likely to be in time saved in polling banks for details of daily activity, in entering data into a spreadsheet or database, in such clerical functions as reconciling book and bank account balances, and in arriving at a final cash position for investing or borrowing decisions. The total time saving is

not likely to be more than three to four hours daily, and that time may be a fixed charge if the treasury analyst is a full-time position.

Step 5: Choose the System

The greatest challenge in the final choice of a treasury information system may be in balancing the functionality, the cost and the commitment of the bank or vendor to the service. However, whether a treasury workstation or an Internet product is selected, the following issues should be addressed:

- Who will service and maintain the product: the bank, the vendor or the third-party Internet provider? Will the service be available 24/7 or only during normal business hours? Is the product supported by technology experts or by customer service staff who respond to menu-driven questions?

- What happens in the event of a system failure or disaster? Does the bank or vendor have adequate, secure backup facilities?

- Does the bank or vendor have a reasonable number of references of satisfied customers?

- Is there any concern for compatibility with other treasury and accounting systems?

- Is the product user-friendly or will extensive training be required?

- What is the commitment of the bank or vendor to the business? How long are they likely to continue to offer, support and improve the product?

In the Real World

Many companies today are opting for an Internet-based service, because of several factors:

- The partnership of a financial institution and a specialized Internet vendor
- The convenience of access through any PC or laptop
- The assurance of security and control
- The relatively low expense of acquiring and maintaining the technology
- The ease of exiting from the relationship without a significant sunk cost in acquiring software or hardware upgrades

Summary

Treasury information systems offer a variety of modules for manipulating and managing cash. The treasurer faces two delivery system choices: the treasury workstation and Internet-based systems. The decision on modules and the delivery system is usually based on comfort and compatibility with the technology, and on the alternatives offered by the primary banking relationship. Companies too often choose a treasury information system without a careful review of necessary internal processing improvements and uses of data, which is a critical first step in the process.

Bill and Ann understood that they would require a reliable, inexpensive and supported treasury information system to access their banking relationships. Of the options available, the most attractive appeared to be an Internet-based system. However, they also realized that some work would first be necessary to determine their requirements and internal changes to adjust to the new